



Rocky Mountain  
Remediation Services, L. L. C.  
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COPY # 35

# INSTRUCTION

WASTE WATER TREATMENT PLANT  
EFFLUENT TANK OPERATION

OPS-INSTR.005

Revision 1

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APPROVED BY

*[Signature]* 9/30/97

WWO Team Lead

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## 1. PURPOSE

This work instruction (WI) provides instructions for operating the effluent Waste Water Treatment Plant (WWTP) system.

## 2. SCOPE

This WI applies to all WWTP operators (WWTO) that are required to operate the WWTP system.

This WI addresses operations of the WWTP effluent tanks and associated auxiliary equipment.

## 3. INSTRUCTIONS—EFFLUENT OPERATIONS

### WWTO

- [1] Perform an electrical lineup in accordance with Appendix 1, Effluent System Electrical Lineup.
- [2] Turn the ultra-violet (UV) Main Power Switch to the ON position.

### WARNING

While in the Building housing the UV system and it is in operation, UV rated safety glasses are to be worn. Not wearing UV rated safety glasses can result in damage to the eyes.

- [3] Ensure that all personnel in the area of the UV system are wearing UV protective safety glasses.

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ADMIN RECORD A SUB-A-00248

- [4] **IF** operating the (UV) in manual,  
**THEN:**

- [A] Turn the HAND/OFF/AUTO switches to the HAND position for each module selected for operation.

The touch screen will display what modules and lamps are on.

- [B] Verify that the appropriate lamps are ON by viewing the lamp status screen at the touch screen display on the control box.

**NOTE** *The automatic mode is controlled by the programmable logic controller (PLC) located in the Control; Enclosure. The effluent flowmeter signals the PLC to turn on or off each bank of lamps at predetermined set points in response to the effluent flowrate.*

- [5] **IF** operating the ultra-violet (UV) in automatic,  
**THEN:**

- [A] Turn the HAND/OFF/AUTO switches to the AUTO position.

- [B] Turn flow pacing enable switch to the ON position.

The touch screen will display what modules and lamps are on.

- [C] Verify that the appropriate lamps are ON by viewing the lamp status screen at the touch screen display on the control box.

### 3.1 **Effluent Tank Filling Operation**

#### **WWTP Supervision**

- [1] Determine the operations of the effluent tanks.

**WWTO**

- [2] Perform a lineup in accordance with Table 3.1, Effluent Filling Tank Lineup.

Table 3.1, Effluent Filling Tank Lineup

CELL 1		CELL 2		CELL 3	
OPEN	CLOSED	OPEN	CLOSED	OPEN	CLOSED
HV-18	HV-19	HV-19	HV-18	HV-20	HV-18
HV-21	HV-20	HV-22	HV-20	HV-23	HV-19
HV-35	HV-22	HV-35	HV-21	HV-35	HV-21
HV-50	HV-23	HV-50	HV-23	HV-50	HV-22
	HV-24		HV-24		HV-24
	HV-25		HV-25		HV-25
	HV-26		HV-26		HV-26
	HV-32		HV-32		HV-32
	HV-33		HV-33		HV-33
	HV-34		HV-34		HV-34

- [3] Place LV-50, Level Control Valve Sand Filters, to the AUTO position.
- [4] Ensure that the backwash pump is in operation.
- [5] Set FCV-75 (flowrate to UV from the effluent tanks) to the desired flowrate, using FIC-75 controller.
- [6] **IF** another tank is to be place into service,  
**THEN** perform step 3.1 [2] to change to another effluent tank.
- [7] **WHEN** filling of the effluent tanks is complete as determined by supervision,  
**THEN:**
- [A] Close LV-50.

**NOTE** *The following step sends the plant effluent directly to the UV system.*

- [B] Close the appropriate valves in accordance with Table 3.3, Effluent Tank Cell to Cell Shutdown.

Table 3.3, Effluent Tank Cell to Cell Shutdown.

CELL 1	CELL 2	CELL 3
HV-18	HV-19	HV-20
HV-21	HV-22	HV-23
HV-35	HV-35	HV-35
HV-50	HV-50	HV-50

### 3.2 Transferring from One Effluent Tank to Another Effluent Tank

#### WWTP Supervision

- [1] Determine which effluent tank is being transferred from and which effluent tank is the receiving tank..

#### WWTO

- [2] **IF** transferring from Effluent Tank Cell 1 to another Effluent Tank,  
**THEN** perform a lineup in accordance with Table 3.3, Cell 1 to Another Effluent Tank.

Table 3.3, Cell 1 to Another Effluent Tank

CELL 1 to CELL 2		CELL 1 to CELL 3	
OPEN	CLOSED	OPEN	CLOSED
HV-24	HV-21	HV-24	HV-21
HV-31	HV-25	HV-31	HV-25
HV-33	HV-26	HV-34	HV-26
	HV-27		HV-27
	HV-28		HV-28
	HV-32		HV-32
	HV-34		HV-33

- [2] **IF** transferring from Effluent Tank Cell 1 to another Effluent Tank,  
**THEN** perform a lineup in accordance with Table 3.4, Cell 2 to Another Effluent Tank.

Table 3.4, Cell 2 to Another Effluent Tank

CELL 2 to CELL 1		CELL 2 to CELL 3	
OPEN	CLOSED	OPEN	CLOSED
HV-25	HV-21	HV-25	HV-21
HV-31	HV-24	HV-31	HV-24
HV-32	HV-26	HV-34	HV-26
	HV-27		HV-27
	HV-28		HV-28
	HV-33		HV-32
	HV-34		HV-33

- [4] **IF** transferring from Effluent Tank Cell 3 to another Effluent Tank,  
**THEN** perform a lineup in accordance with Table 3.5, Cell 3 to Another Effluent Tank.

Table 3.5, Cell 3 to Another Effluent Tank

CELL 3 to CELL 1		CELL 3 to CELL 2			
OPEN	CLOSED	OPEN	CLOSED		
HV-26	HV-21	HV-26	HV-21		
HV-31	HV-24	HV-31	HV-24		
HV-32	HV-25	HV-33	HV-25		
	HV-27		HV-27		
	HV-28		HV-28		
	HV-33		HV-32		
	HV-34		HV-34		

- [5] Place P-66, Effluent Recirculation Pump, handswitch to the HAND position.

[6] **WHEN** the transfer from one cell to the another cell is complete,  
**THEN:**

[A] Place P-66 handswitch to the OFF position.

[B] Close the appropriate valves in accordance with Table 3.6, Effluent Tank Cell to Cell Shutdown.

Table 3.6, Effluent Tank Cell to Cell Shutdown

CELL 1	CELL 2	CELL 3
HV-24	HV-25	HV-26
HV-31	HV-31	HV-31
HV-33	HV-32	HV-32
HV-34	HV-34	HV-33

### 3.3 Effluent Tanks to the Headworks

**NOTE** 7.6 feet or 100,000 gallons are required to be in storage in the effluent tanks to be used for fire fighting.

#### WWTP Supervision

[1] Determine the transfer from the effluent tanks to the headworks.

#### WWTO

[2] Perform a lineup in accordance with Table 3.7, Effluent Tanks to the Headworks.

Table 3.7, Effluent Tanks to the Headworks

CELL 1		CELL 2		CELL 3	
OPEN	CLOSED	OPEN	CLOSED	OPEN	CLOSED
HV-24	HV-21	HV-25	HV-22	HV-26	HV-23
HV-28	HV-27	HV-28	HV-27	HV-28	HV-27
HV-31	HV-32	HV-31	HV-32	HV-31	HV-32
	HV-33		HV-33		HV-33
	HV-34		HV-34		HV-34

- [3] Place P-66, Effluent Recirculation Pump, handswitch to the HAND position.
- [4] **WHEN** the transfer from the effluent tanks to the headworks is complete,  
**THEN:**
- [A] Place P-66 handswitch to the OFF position.
- [B] Close the appropriate valves in accordance with Table 3.8, Effluent Tank to Headworks Shutdown.

Table 3.8, Effluent Tank to Headworks Shutdown

CELL 1	CELL 2	CELL 3
HV-24	HV-25	HV-26
HV-28	HV-28	HV-28
HV-31	HV-31	HV-31

#### 4. RECORDS

The following documents generated during the performance of the tasks defined in this document must be copied and distributed as follows: (Note: QA records are to be specifically designated as such)

<u>Document</u>	<u>Record Type</u>	<u>Disposition</u>
None		

**APPENDIX 1**

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**EFFLUENT SYSTEM ELECTRICAL LINEUP**

<b>EQUIPMENT</b>	<b>POSITION</b>
MCC-1-1988 2A	Closed
LPE	Closed
Plant Water Pump	Closed
Tank Mixer A-61	Closed
Tank Mixer A-62	Closed
Tank Mixer A-63	Closed
Transfer Recirc Pump Control Panel	Closed